App. No. 10/065,738
Amendment dated May 6, 2003
Reply to Office action of February 6, 2003

This listing of claims will replace the prior version of the claims in the present application.

Listing of Claims:

Claim 1 (currently amended): A Faraday rotator having wavelength selectivity, for selectively rotating only the polarization plane of incident light of given wavelengths, the Faraday rotator comprising:
a magneto-optical ~~part~~ section into which at least one dielectric layer is interlaminated to create at least two magneto-optical parts for rotating the polarization plane of incident light of at least two wavelengths traveling in the direction ~~of~~ in which the magnetic field of said magneto-optical ~~part's magnetic field~~ section is oriented; and
~~a~~ dielectric multi-layer films in which a low refractive-index layer and a high refractive-index layer are laminated in alternation, disposed on either side of said magneto-optical section in an arrangement predetermined to create a resonant structure for localizing within said magneto-optical ~~part~~ section incident light of at least ~~one~~ two wavelengths.

Claim 2 (canceled)

Claim 3 (currently amended): The Faraday rotator set forth in claim 1, wherein said magneto-optical ~~part~~ section is constituted from a gadolinium iron garnet thin film.

Claim 4 (currently amended): The Faraday rotator set forth in claim 1, wherein said dielectric multi-layer film is composed by laminating in alternation an oxide of silicon ~~oxide~~ as a low refractive-index layer, and an oxide of titanium ~~oxide~~ as a high refractive index layer.

Claim 5 (currently amended): The Faraday rotator set forth in claim 1, wherein said magneto-optical ~~part~~ section and said dielectric multi-layer film are formed integrally by a vapor-phase process.

Claim 6 (currently amended): An optical isolator having wavelength selectivity, for selectively blocking only return beams from incident light of given wavelengths, the optical isolator comprising:
a magneto-optical ~~part~~ section into which at least one dielectric layer is interlaminated to create at least two magneto-optical parts for rotating the polarization plane of incident light of at least two wavelengths traveling in the direction ~~of~~ in which the magnetic field of said magneto-optical ~~part's magnetic field~~ section is oriented;
a magnetic part for applying a magnetic field to said magneto-optical ~~part~~ section;
~~a~~ dielectric multi-layer films in which a low refractive-index layer and a high refractive-index layer are laminated in alternation, disposed on either side of said magneto-optical section in an arrangement predetermined to create a resonant structure for localizing within said magneto-optical ~~part~~ section incident light of at least ~~one~~ two wavelengths;
a polarizer for ~~picking out~~ extracting polarized components from incident beams; and
an analyzer utilized in combination with said polarizer.

Claim 7 (canceled):

Claim 8 (currently amended): The optical isolator set forth in claim 6, wherein said magneto-optical ~~part~~ section is constituted from a gadolinium iron garnet thin film.

Claim 9 (canceled)

Claim 10 (currently amended): The optical isolator set forth in claim 6, wherein said dielectric multi-layer films ~~is~~ are composed by laminating in alternation an oxide of silicon ~~oxide~~ as a low refractive-index layer, and an oxide of titanium oxide as a high refractive index layer.

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Claim 11 (original): The optical isolator set forth in claim 6, wherein said polarizer and said analyzer are lent a structure having distributed refractive indices, by irradiating with either a particle beam or an energy beam a diamond-like carbon thin film along a bias with respect to the film's thickness direction.

Claim 12 (original): The optical isolator set forth in claim 11, wherein said particle beam is an ion beam, an electron beam, a proton beam, α-rays, or a neutron beam; and said energy beam is light rays, X-rays or γ-rays.

Claim 13 (currently amended): The optical isolator set forth in claim 6, wherein said magneto-optical ~~part~~ section, said magnetic part, said dielectric multi-layer films, said polarizer, and said analyzer are formed integrally by a vapor-phase process.

Claim 14 (original): A polarizer lent a characteristic structure having distributed refractive indices, by irradiating with either a particle beam or an energy beam a diamond-like carbon thin film along a bias with respect to the film's thickness direction.

Claim 15 (original): The polarizer set forth in claim 14, wherein said particle beam is an ion beam, an electron beam, a proton beam, α-rays, or a neutron beam; and said energy beam is light rays, X-rays or γ-rays.

Claim 16 (original): A diamond-like carbon thin film characterized in being transparent in the light region, and in having an extinction coefficient that is 3×10^{-4} or less at optical-communications wavelengths of from 1200 nm to 1700 nm.

Claim 17 (original): An optics component, characterized by utilizing the diamond-like carbon thin film set forth in claim 16.

Claim 18 (original): The optical isolator set forth in claim 11, wherein said diamond-like carbon thin film is transparent in the light region, and has an extinction coefficient that is 3×10^{-4} or less at optical-communications wavelengths of from 1200 nm to 1700 nm.

Claim 19 (original): The optical isolator set forth in claim 12, wherein said diamond-like carbon thin film is transparent in the light region, and has an extinction coefficient that is 3×10^{-4} or less at optical-communications wavelengths of from 1200 nm to 1700 nm.

Claim 20 (original): The polarizer set forth in claim 14, wherein said diamond-like carbon thin film is transparent in the light region, and has an extinction coefficient that is 3×10^{-4} or less at optical-communications wavelengths of from 1200 nm to 1700 nm.

Claim 21 (original): The polarizer set forth in claim 15, wherein said diamond-like carbon thin film is transparent in the light region, and has an extinction coefficient that is 3×10^{-4} or less at optical-communications wavelengths of from 1200 nm to 1700 nm.